

AVONDALE IRRIGATION DISTRICT (PWSNO 1280008) SOURCE WATER ASSESSMENT REPORT

April 12, 2001



State of Idaho Department of Environmental Quality

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Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This risk assessment is based on a land use inventory in the well recharge zone, sensitivity factors associated with how the well was constructed, and aquifer characteristics.

This report, *Source Water Assessment for Avondale Irrigation District*, describes the public drinking water wells; the well recharge zone and potential contaminant sites located inside the recharge zone boundaries. This assessment, taken into account with local knowledge and concerns, should be used as a planning tool to develop and implement appropriate protection measures for this public water system. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

Avondale Irrigation District drinking water is supplied by six wells pumping from the Rathdrum Prairie Aquifer. The district serves a population of about 5,150 in the Hayden Lake area of Kootenai County, Idaho. Historically, Avondale Irrigation District has had few water quality problems. A groundwater Susceptibility Analysis conducted by DEQ August 17, 2001 found the wells to be at moderate risk of contamination, mostly because of natural factors associated with local geology.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Source water protection activities for Avondale Irrigation District should incorporate a variety of strategies. The District should continue to urge its customers to install and maintain back flow prevention devices. Public education efforts should be aimed at school children, households and businesses in the service area.

Because 186 public water systems in Idaho draw water from the Rathdrum Prairie Aquifer, they should consider forming a regional group to represent their interests before state, county and municipal governing bodies when regulatory tools like zoning overlays, or enactment of building codes are the most appropriate ground water protection measures. Partnerships with state and local agencies and industry groups should also be established.

Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. For assistance in developing protection strategies, please contact your regional Department of Environmental Quality office or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR AVONDALE IRRIGATION DISTRICT

Section 1. Introduction - Basis for Assessment

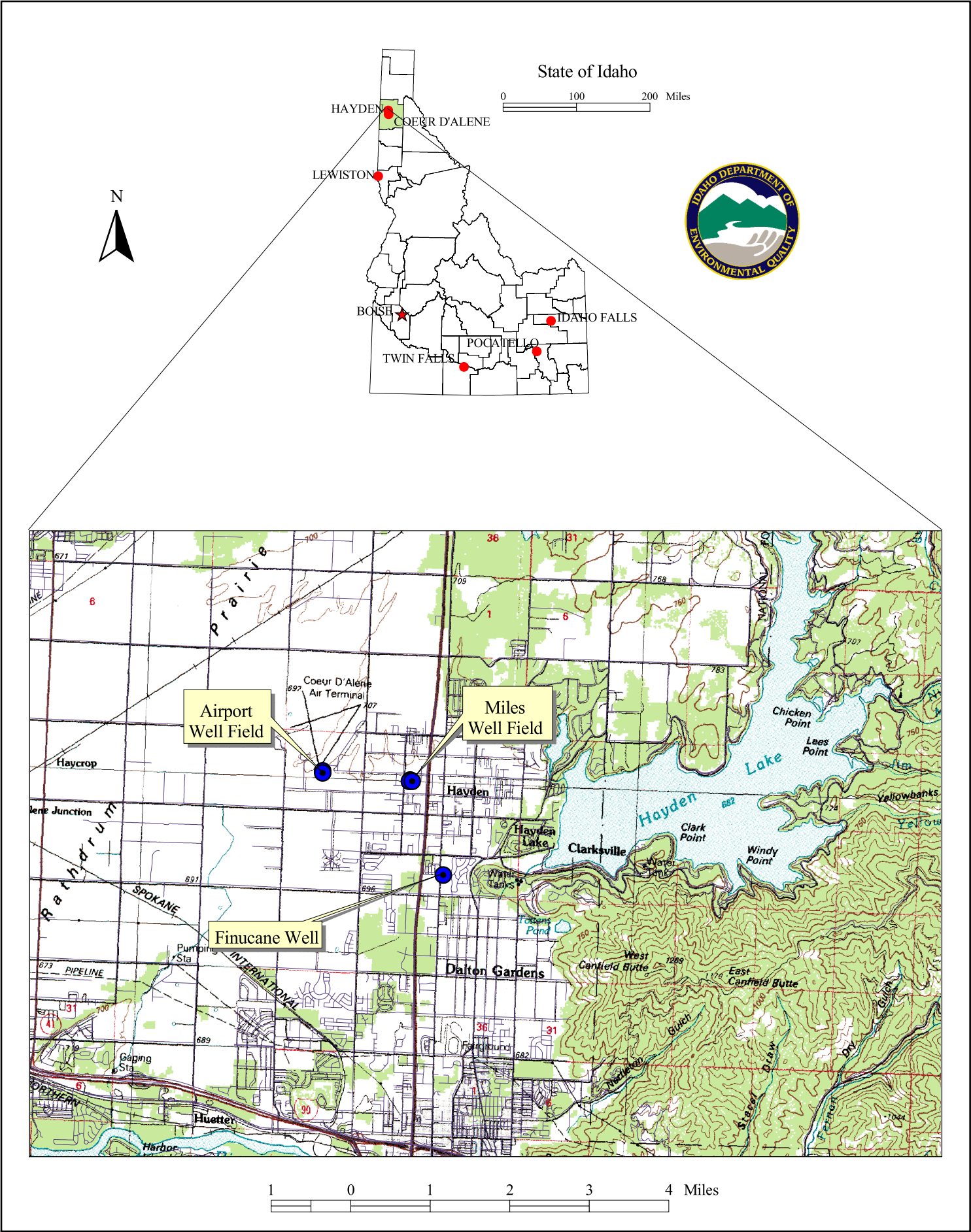
The following sections contain information necessary for understanding how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and an inventory of significant potential sources of contamination identified within that area are included. The ground water susceptibility analysis worksheets used to develop this assessment are attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess every public drinking water source in Idaho for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. These assessments are based on a land use inventory inside the delineated recharge zones, sensitivity factors associated with how the well is constructed, and aquifer characteristics. The state must complete more than 2900 assessments by May of 2003. Because resources and the time available to accomplish assessments are limited, an in-depth, site-specific investigation for every public water system is not possible.

The results of the source water assessment should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system The ultimate goal of this assessment is to provide data to local communities for developing a protection strategy for their drinking water supply. The Idaho Department of Environmental Quality recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Figure 1. Geographic Location of Avondale Irrigation District



Section 2. Preparing for the Assessment

Defining the Zones of Contribution - Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the well recharge area into time of travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer.

DEQ used a refined computer model approved by the EPA to determine the three-year, six-year and ten-year time of travel (TOT) for water Avondale Irrigation District pumps from the Rathdrum Prairie Aquifer. The computer model used data assimilated by DEQ from a variety of sources including Avondale Irrigation District and other local well logs.

Avondale Irrigation District serves a community of approximately 5,150 people located in the Hayden Lake/Hayden Village area of Kootenai County, Idaho (Figure 1) Public drinking water for Avondale Irrigation District customers is supplied from the Airport Well Field, comprised of two wells; the Miles Well Field with three wells and the Finucane well.

The delineated source water assessment areas for Avondale Irrigation District are long, narrow corridors stretching eastward from the wells (Figure 2). The recharge zones for the Airport and Miles well fields overlap. The Miles wellfield delineation and the delineation for the Finucane well terminate in the 3 to 6 year time-of-travel zones because they reach the edge of the aquifer at Hayden Lake. The data used by DEQ to determine the source water assessment delineations are available upon request.

Identifying Potential Sources of Contamination

The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Inventories for public water systems in Idaho were conducted in two-phases. The first phase involved identifying and documenting potential contaminant sources within the Avondale Irrigation District source water assessment areas through the use of computer databases and Geographic Information System maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to validate the sources identified in phase one and to add any additional potential sources in the area. This task was undertaken with the assistance of Bob Chandler.

Figure 2 *Avondale Irrigation District Delineation and Potential Contaminant Inventory* on page 7 of this report shows the locations of the Avondale Irrigation District wells, the zones of contribution DEQ delineated for the wells, and approximate locations of potential contaminant sites. Numbers identifying the sites on the map correspond to additional information about the sites on Table 2 (page 8).

Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. When a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation.

Section 3. Susceptibility Analysis

The susceptibility of the Avondale Irrigation District wells to contamination was assessed on the following factors:

- physical integrity of the wells,
- hydrologic characteristics,
- land use characteristics, and potentially significant contaminant sources
- historic water quality.

The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. A high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking. The Susceptibility Analysis Worksheets in Attachment A show in detail how each well scored.

Well Construction

Well construction directly affects the ability of the wells to protect the aquifer from contaminants. Lower scores imply a well that can better protect the water. This portion of the susceptibility analysis relies on information from individual well logs and from the most recent sanitary survey of the public water system.

The Avondale Irrigation District drinking water system consists of six wells that extract ground water for domestic, agricultural and industrial uses. The water is chlorinated before entering the distribution system. The system is well organized and operated, with all of the wells maintained in compliance with Idaho's Rules for Public Water Systems. Surface seal depths meet or exceed Idaho Department of Water Resources standards, but points were marked against the wells to reflect unconsolidated nature of the Rathdrum Prairie Aquifer. Table 1 summarizes construction and site characteristics for each well. No well log is on file for the Finucane well, but depth information was available from a pump installation report.

Table 1. Selected Construction Characteristics of Avondale Irrigation District Wells.

Well	Total Depth (ft.)	Depth of Surface Seal (ft)	Depth of Casing (ft)	Well Screen Depth Range (ft)	Static Water Level (ft)
Airport Well	382	20	342	342-382	301
Airport Well #2	390	20	350	350-390	303
Finucane Well	298.6	Unknown	298.6	278	246
Miles Well #1	388	40	340	345-383	293
Miles Well #2	388	40	340	345-383	289
Miles Well #3	417	20	380	380-412	292

Figure 2 City of ANYTOWN Delineation Map and Contaminant Sources

(Insert GIS Map here)

Hydrologic Sensitivity

Hydrologic sensitivity scores for all of the Avondale Irrigation District wells were in the high range. These scores reflect natural geologic conditions at the well sites and in the recharge zones. Except for the Airport Wells, the depth to groundwater is less than 300 feet. Sand, gravel and cobbles fill the soil strata between the topsoil and the water table. There is not a significant clay layer retarding the vertical transport of contaminants.

Potential Contaminant Sources and Land Use

Land use within The Avondale Irrigation District well recharge zones mainly consists of single family housing, small businesses, and light manufacturing. Homes in the Hayden Lake are served either by a municipal sewer system or individual septic systems. The wastewater treatment plant and wastewater land application site for the community are located outside of the recharge zones delineated for the Avondale Irrigation District wells.

A total of 11 potential contaminant sites are located within the delineated source water areas shown on Figure 1. Table 2, *Avondale Irrigation Potential Contaminant Inventory* summarizes information about the sites.

Table 2. Avondale Irrigation District Potential Contaminant Inventory.

MAP ID NUMBER	SITE DESCRIPTION	SOURCE OF INFORMATION	POTENTIAL CONTAMINANTS ¹
1	Floor Machines-Manufacturers	Business Mailing List Database	VOC, SOC
2	Plastics Manufacturing	Enhanced Inventory	IOC, SOC, VOC
3	Seed And Fertilizer Sales	Enhanced Inventory	IOC, VOC
4	Veterinary Clinic	Enhanced Inventory	IOC, MICROBIAL
5	Auto Detailing	Enhanced Inventory	IOC, SOC, VOC
6	Food Processing	Enhanced Inventory	IOC, MICROBIAL
7	Filter Service	Enhanced Inventory	SOC, VOC
8	Logging Equipment Maintenance	Enhanced Inventory	IOC, SOC, VOC
9	RV Repair	Enhanced Inventory	IOC, SOC, VOC

¹ IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Historic Water Quality

Historically, Avondale Irrigation District has had few water quality problems. Times when water samples tested positive for total Coliform bacteria appear to be related to construction activity in the district or to sampling technique error.

The system tests annually for nitrates. Nitrate concentrations in water from the Airport well field have fluctuated from 0.425 to 1.18 mg/l since 1994. Nitrate concentrations in the Finucane well have ranged from undetectable levels to 1.08 mg/l. The Miles well field nitrate concentrations have varied from undetectable levels to 0.586 mg/l. The Maximum Contaminant Level (MCL) for nitrate is 10 mg/l.

Synthetic organic compounds and volatile organic compounds have never been detected in the wells. Radiological contaminants in concentrations far below MCL have been present since testing began in 1987.

Arsenic, an inorganic contaminant, has been detected in water from the Miles well field. The concentration declined from 0.016 mg/l in 1988 to 0.012 mg/l in 1994 and dropped to 0.008 mg/l in 1995. The current Maximum Contaminant Level for arsenic is 0.05 mg/l.

Final Susceptibility Ranking

All of the Avondale Irrigation District wells ranked moderately susceptible to all classes of regulated contaminants. Total scores for each well in each category are summarized on Table 3. The complete analysis for each well can be found in Attachment A.

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

The final ranking categories are as follows:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- > 13 High Susceptibility

Table 3. Summary of Avondale Irrigation Susceptibility Evaluation

Well	Susceptibility Scores					
	System Construction	Hydrologic Sensitivity	Contaminant Inventory			
			IOC	VOC	SOC	Microbial
Airport	3	5	10	10	10	2
Airport #2	3	5	10	10	10	2
Finucane	4	4	0	0	0	0
Miles #1	3	6	17	17	17	4
Miles #2	3	6	17	17	17	4
Miles #3	3	6	14	14	14	4
Final Susceptibility Ranking						
Airport	IOC		VOC		SOC	
Airport #2	Moderate		Moderate		Moderate	
Finucane	Moderate		Moderate		Moderate	
Miles #1	Moderate		Moderate		Moderate	
Miles #2	Moderate		Moderate		Moderate	
Miles #3	Moderate		Moderate		Moderate	

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

HIGH* - Indicates source automatically scored as high susceptibility due to presence of bacteria or a VOC, SOC or an IOC above the maximum contaminant level in the tested drinking water

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. The state and local health districts have instituted enhanced protection of the ground water in the Rathdrum Prairie Aquifer because of its high use and uniquely pristine water quality. The protections are generally aquifer wide and are not aimed at zones of contribution to a specific well or water system. *The Spokane Valley-Rathdrum Prairie Atlas*, sent to water systems on the prairie when they were invited to perform an enhanced contaminant inventory, describes some of the regional protection measures.

The 186 public water systems in Idaho that draw water from the Rathdrum Prairie Aquifer should consider forming a regional group to represent their interests before state, county and municipal governing bodies when regulatory tools like zoning overlays, or enactment of building codes are the most appropriate ground water protection measures. These types of measures could be used to protect the capture zones of a specific system or group of wells that could be put at risk from local land use changes.

In its own service area, Avondale Irrigation District should continue to urge its customers to install and maintain back flow prevention devices. The district can sponsor public education efforts like distribution of "Buster Backflow" comics to schoolchildren in its service area. Water users can be invited to participate in voluntary ground water protection activities like household hazardous materials collection days. The district can distribute pollution prevention booklets to businesses in its recharge zones that outline industry specific best management practices.

Partnerships with state and local agencies and industry groups should also be established. For instance, source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, local Soil Conservation District, and the Natural Resources Conservation Service. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

Assistance

Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the IDEQ office for preliminary review and comments.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: <http://www.deq.state.id.us>

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at (208) 343-7001 for assistance with wellhead protection strategies.

References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

Idaho Department of Agriculture, 1998. Unpublished Data.

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Idaho Division of Environmental Quality, 1996. Lower Payette River Agriculture Irrigation Water Return Study and Ground Water Evaluation, Payette County, Idaho. Water Quality Status Report No. 115.

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Idaho Department of Environmental Quality, 2000. City of Fruitland Wellhead Viability Project 319 Grant Final Report July 2000.

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Natural Resource Conservation Service, 1991. Idaho Snake-Payette Rivers Hydrologic Unit Plan of Work. March 1991.

United States Geological Survey, 1986. Quality of Ground Water in the Payette River Basin, Idaho. United States Geological Survey. Water Resources Investigation Report 86-4013.

University of Idaho. 1986. Ground Water Resources in a Portion of Payette County, Idaho. Idaho Water Resources Research Institute. University of Idaho. Moscow, Idaho. April 1986.

Attachment A

Avondale Irrigation District Susceptibility Analysis Worksheets

Ground Water Susceptibility Analysis

Public Water System Name : **AVONDALE IRRIGATION DIST**
Public Water System Number : **1280008**

Source: **AIRPORT WELL**
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1. System Construction		SCORE			
Drill Date	12/23/93				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1999			
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	YES	0			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		5			
3. Potential Contaminant / Land Use - ZONE 1A (Sanitary Setback)		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use Zone 1A	RANGELAND, WOODLAND, OTHER	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B (3 YR. TOT)					
Contaminant sources present (Number of Sources)	YES	2	2	2	0
(Score = # Sources X 2) 8 Points Maximum		4	4	4	0
Sources of Class II or III leacheable contaminants or Microbials	YES	2	2	2	
4 Points Maximum		2	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		8	8	8	2
Potential Contaminant / Land Use - ZONE II (6 YR. TOT)					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		0	0	0	0
Potential Contaminant / Land Use - ZONE III 10 YR. TOT)					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of Zone	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0
Cumulative Potential Contaminant / Land Use Score		10	10	10	2
4. Final Susceptibility Source Score		10	10	10	9
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility

Public Water System Name : **AVONDALE IRRIGATION DIST**
Public Water System Number : **1280008**

Source: **AIRPORT #2**
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1. System Construction		SCORE			
Drill Date	4/9/96				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1999			
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	YES	0			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		5			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A (Sanitary Setback)		Score	Score	Score	Score
Land Use Zone 1A	RANGELAND, WOODLAND, OTHER	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B (3 YR. TOT)					
Contaminant sources present (Number of Sources)	YES	2	2	2	0
(Score = # Sources X 2) 8 Points Maximum		4	4	4	0
Sources of Class II or III leacheable contaminants or Microbials	YES	2	2	2	
4 Points Maximum		2	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		8	8	8	2
Potential Contaminant / Land Use - ZONE II (6 YR. TOT)					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		0	0	0	0
Potential Contaminant / Land Use - ZONE III 10 YR. TOT)					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of Zone	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0
Cumulative Potential Contaminant / Land Use Score		10	10	10	2
4. Final Susceptibility Source Score		10	10	10	9
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Analysis

Public Water System Name : **AVONDALE IRRIGATION DIST** Source: **FINUCANE WELL 4**
 Public Water System Number : **1280008** 3/22/01 1:34:36 PM

1. System Construction		SCORE			
Drill Date	1970				
Driller Log Available	PUMP INSTALLATION REPORT				
Sanitary Survey (if yes, indicate date of last survey)	YES	1999			
Well meets IDWR construction standards	UNKNOWN	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	UNKNOWN	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A (Sanitary Setback)		Score	Score	Score	Score
Land Use Zone 1A	RANGELAND, WOODLAND, OTHER	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B (3 YR. TOT)					
Contaminant sources present (Number of Sources)	NO	0	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		0	0	0	0
Potential Contaminant / Land Use - ZONE II (6 YR. TOT)					
Contaminant Sources Present	YES	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	YES	0	0	0	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		0	0	0	0
Potential Contaminant / Land Use - ZONE III (10 YR. TOT)					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of Zone	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		0	0	0	0
4. Final Susceptibility Source Score		10	10	10	10
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Analysis

Public Water System Name : **AVONDALE IRRIGATION DIST**
Public Water System Number : **1280008**

Source: **MILES WELL #1**
3/22/01 1:33:26 PM

1. System Construction		SCORE			
Drill Date	2/4/77				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1999			
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A (Sanitary Setback)		Score	Score	Score	Score
Land Use Zone 1A	URBAN/COMMERCIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2
Potential Contaminant / Land Use - ZONE 1B (3 YR. TOT)					
Contaminant sources present (Number of Sources)	YES	5	4	4	1
(Score = # Sources X 2) 8 Points Maximum		8	8	8	2
Sources of Class II or III leacheable contaminants or Microbials	YES	5	4	4	
4 Points Maximum		4	4	4	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	12	12	2
Potential Contaminant / Land Use - ZONE II (6 YR. TOT)					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		3	3	3	0
Potential Contaminant / Land Use - ZONE III (10 YR. TOT)					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of Zone	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		17	17	17	4
4. Final Susceptibility Source Score		12	12	12	11
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Analysis

Public Water System Name : **AVONDALE IRRIGATION DIST**
Public Water System Number : **1280008**

Source: **MILES WELL #2**
3/22/01 1:33:51 PM

1. System Construction		SCORE			
Drill Date	1/31/77				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1999			
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A (Sanitary Setback)		Score	Score	Score	Score
Land Use Zone 1A	URBAN/COMMERCIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2
Potential Contaminant / Land Use - ZONE 1B (3 YR. TOT)					
Contaminant sources present (Number of Sources)	YES	5	4	4	1
(Score = # Sources X 2) 8 Points Maximum		8	8	8	2
Sources of Class II or III leacheable contaminants or Microbials	YES	5	4	4	
4 Points Maximum		4	4	4	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	12	12	2
Potential Contaminant / Land Use - ZONE II (6 YR. TOT)					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		3	3	3	0
Potential Contaminant / Land Use - ZONE III (10 YR. TOT)					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of Zone	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		17	17	17	4
4. Final Susceptibility Source Score		12	12	12	11
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Analysis

Public Water System Name : **AVONDALE IRRIGATION DIST**
Public Water System Number : **1280008**

Source: **MILES WELL #3**
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1. System Construction		SCORE			
Drill Date	1/27/77				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1999			
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A (Sanitary Setback)		Score	Score	Score	Score
Land Use Zone 1A	URBAN/COMMERCIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2
Potential Contaminant / Land Use - ZONE 1B (3 YR. TOT)					
Contaminant sources present (Number of Sources)	YES	5	4	4	1
(Score = # Sources X 2) 8 Points Maximum		8	8	8	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
4 Points Maximum		1	1	1	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		9	9	9	2
Potential Contaminant / Land Use - ZONE II (6 YR. TOT)					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		3	3	3	0
Potential Contaminant / Land Use - ZONE III (10 YR. TOT)					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of Zone	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		14	14	14	4
4. Final Susceptibility Source Score		12	12	12	11
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as **Superfund** is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.